

AMENDMENTS TO THE CLAIMS

Listing of Claims:

1. (Currently amended) A method of increasing the production of starch in a plant[[s]] comprising culturing a plant with enhanced expression or activity of at least one starch biosynthesis enhancing protein, wherein the starch biosynthesis enhancing protein comprises an amino acid sequence having at least 80% identity with the sequence as set forth in SEQ ID NO: 4.
2. (Original) The method of claim 1, wherein said starch has a high amylose content.
3. (Currently amended) The method as claimed in claim 1, wherein production of amylose in the plant is increased.
4. (Currently amended) The method as claimed in claim 1, wherein said method comprises over-expression of a over-expressing the starch biosynthesis enhancing protein.
5. (Currently amended) The method as claimed in claim [[4]] 1, wherein said starch biosynthesis enhancing protein comprises the amino acid sequence as set forth in SEQ ID NO: 2 or 4 or a protein derived from this sequence by substitution, insertion or deletion of amino acids and which has at least 50% identity at the amino acid level with SEQ ID NO: 2 or 4.
6. (Currently amended) The method as claimed in claim 1, wherein the starch biosynthesis enhancing protein is encoded by a nucleic acid sequence selected from the group consisting of:
comprises an amino acid sequence having at least 90% identity with the sequence as set forth in SEQ ID NO: 4.
 - a) ~~a nucleic acid sequence comprising a nucleotide sequence which is at least 60% identical to the nucleic acid sequence of SEQ ID NO: 1 or 3;~~
 - b) ~~a nucleic acid sequence comprising a fragment of at least 30 nucleotides of a nucleic acid sequence comprising the nucleotide sequence of SEQ ID NO: 1 or 3;~~
 - c) ~~a nucleic acid sequence which encodes a polypeptide comprising an amino acid sequence at least about 60% identical to the amino acid sequence of SEQ ID NO: 2 or 4 and~~
 - d) ~~a nucleic acid sequence which encodes a fragment of a polypeptide comprising~~

~~the amino acid sequence of SEQ ID NO: 2 or 4 or wherein the fragment comprises at least 10 contiguous amino acid residues of the amino acid sequence of SEQ ID NO: 2 or 4,~~

7. (Currently amended) The method as claimed in claim 1, wherein the starch biosynthesis enhancing protein is encoded by a nucleic acid ~~sequence~~ comprising the nucleotide sequence as set forth as in SEQ ID NO: 1 or SEQ ID NO: 3.
8. (Withdrawn, currently amended) The method as claimed in claim 1, wherein deficiency or decreased activity is achieved by a method selected from the group consisting of:
 - a) knock-out of the gene encoding said protein;
 - b) mutagenesis of the gene encoding said protein, wherein said mutation can be induced in the coding, non-coding, or regulatory regions of said gene;
 - c) expression of an anti-sense RNA, wherein said anti-sense RNA is complementary to at least part of the RNA encoding said protein[[:]].
9. (Currently amended) A method of producing amylose type starch in a plant by culturing a plant which over-expresses SEQ ID NO: 4 ~~or 3~~ or has increased activity of at least one starch biosynthesis enhancing protein activity under conditions such that the plant produces an increased amount of amylose type starch, wherein the starch biosynthesis enhancing protein comprises an amino acid sequence having at least 80% identity with the sequence as set forth in SEQ ID NO: 4.
10. (Previously presented) The method of claim 1, wherein said plant belongs to the genus Solanum.
11. (Original) The method of claim 10, wherein said plant is Solanum tuberosum.
12. (Withdrawn, currently amended) A nucleic acid comprising the nucleic acid sequence as set forth in SEQ ID NO: 1 and encoding a starch biosynthesis enhancing protein.
13. (Currently amended) A nucleic acid comprising the nucleic acid sequence as set forth in SEQ ID NO: 3 and encoding a starch biosynthesis enhancing protein.
14. (Withdrawn, currently amended) ~~An~~ A polypeptide comprising the amino acid sequence as set forth in SEQ ID NO: 2 and having starch biosynthesis enhancing activity.

15. (Withdrawn, currently amended) ~~An~~ A polypeptide comprising the amino acid sequence as set forth in SEQ ID NO: 4 and having starch biosynthesis enhancing activity.

16. (Currently amended) A transgenic expression cassette comprising ~~in combination with a regulatory sequence~~ a nucleic acid sequence ~~selected from the group consisting of:~~ operably linked to a regulatory sequence, wherein the nucleic acid encodes a protein comprising an amino acid sequence having at least 80% identity with the sequence as set forth in SEQ ID NO: 4, and the

- a) ~~— a nucleic acid sequence comprising a nucleotide sequence which is at least 60% identical to the nucleotide sequence of SEQ ID NO:1 or SEQ ID NO:3,~~
- b) ~~— a nucleic acid sequence comprising a fragment of at least 30 nucleotides of a nucleic acid sequence comprising the nucleotide sequence of SEQ ID NO:1 or SEQ ID NO:3,~~
- c) ~~— a nucleic acid sequence which encodes a polypeptide comprising an amino acid sequence at least about 60% identical to the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:4, or~~
- d) ~~— a nucleic acid sequence which encodes a fragment of a polypeptide comprising the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:4 wherein the fragment comprises at least 10 contiguous amino acid residues of the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:4~~

~~wherein said regulatory sequence is capable of mediating expression of said nucleic acid.~~

17. (Currently amended) ~~[[A]]~~ The transgenic expression cassette of claim 16, wherein said regulatory sequence is a promoter sequence heterologous with regard to said nucleic acid sequence.

18. (Currently amended) ~~[[A]]~~ The transgenic expression cassette of claim 16, wherein said regulatory sequence is a tuber specific promoter sequence.

19. (Currently amended) ~~[[A]]~~ The transgenic expression cassette of claim 16, wherein said nucleic acid sequence is arranged in antisense or sense orientation with regard to said ~~promoter~~ regulatory sequence.

20. (Currently amended) ~~[[A]]~~ The transgenic expression cassette of claim 16, wherein said

nucleic acid sequence encodes a polypeptide comprising the amino acid sequence as set forth in ~~SEQ ID NO: 2 or~~ SEQ ID NO: 4.

21. (Currently amended) ~~[[A]]~~ The transgenic expression cassette of claim 16, wherein said nucleic acid ~~molecule~~ comprises the nucleotide sequence as set forth in ~~SEQ ID NO: 1 or~~ SEQ ID NO: 3.

22. (Currently amended) ~~[[A]]~~ The transgenic expression cassette of claim 16, wherein said nucleic acid ~~sequence~~ encodes a naturally occurring variant of a polypeptide comprising the amino acid sequence as set forth in ~~SEQ ID NO: 2 or~~ SEQ ID NO: 4.

23. (Currently amended) A transgenic host cell transformed with ~~an~~ the transgenic expression cassette of claim 16.

24. (Currently amended) ~~[[A]]~~ The transgenic host cell of claim 23, wherein said host cell belongs to the genus Solanum.

25. (Currently amended) A transgenic plant comprising ~~an~~ the expression cassette of claim 16.

26. (Currently amended) A transgenic potato plant comprising ~~an~~ the expression cassette of claim 16.

27. (Currently amended) A transgenic potato plant, plant part, seed or tuber comprising ~~an~~ the expression cassette of claim 16.

28. (New) The method as claimed in claim 1, wherein the starch biosynthesis enhancing protein comprises an amino acid sequence having at least 95% identity with the sequence as set forth in SEQ ID NO: 4.

29. (New) The method of claim 9, wherein said plant belongs to the genus Solanum.

30. (New) The method of claim 29, wherein said plant is Solanum tuberosum.